From Vaccine Hesitancy to Vaccine Confidence: Approaches to Communication with Parents

WNY Immunization Coalitions'
8th Annual Immunization Conference
May 21, 2014

Joseph Domachowske MD
Professor of Pediatrics
Professor of Microbiology and Immunology
Upstate Medical University Syracuse NY

What Is Vaccine Hesitancy?

- Intent to skip or delay at least 1 of the vaccines recommended by the Advisory Committee on Immunization Practices (ACIP)[1,2]
- Uncertainty as to whether a vaccine should be administered in accordance with the ACIP recommended immunization schedule[1,2]
  - In spite of that uncertainty, some vaccine-hesitant parents will allow their children to be immunized anyway[2]
    - Such parents are at risk for skipping or delaying other vaccines down the road[3]
- Steps that health care professionals (HCPs) can take to minimize the impact of vaccine hesitancy[4]:
  - Establish trusting relationships with parents and patients
  - Provide appropriate educational materials

References: **1.** Heller G, Roberts M. Turning the tide: addressing vaccine hesitancy and timely immunizations through a social marketing campaign. Presented at: 44th National Immunization Conference, Atlanta, Georgia, April 21, 2010. Abstract 22697. **2.** Opel DJ, et al. *Hum Vaccines.* 2011;7(4):419-425. **3.** Dempsey AF, et al. *Pediatrics.* 2011;128(5):848-856. **4.** Gust DA, et al. *Pediatrics.* 2008;122(4):718-725.

What Is Vaccine Confidence and Why Is It Necessary?

- Vaccine confidence is trust in the:
  - Safety and efficacy of immunizations
  - Reliability and competence of the HCPs who administer vaccines
  - Motivations of policy makers who decide which immunizations are needed and when they should be administered
- Vaccine confidence increases the likelihood of our achieving and maintaining high immunization rates
  - Left unchecked, declines in vaccine confidence ultimately lead to increasingly widespread vaccine refusal

Reference: 1. Bergquist S. Vaccine confidence/hesitancy update. Presented at: National Vaccine Advisory Committee Meeting, Washington, DC, February 6, 2013.

Factors Leading to the Decline in Vaccine Confidence

- Increase in:
  - Number of new vaccines for various diseases
  - State-level school entry immunization mandates
- Continued success of vaccines in controlling diseases that parents and patients no longer remember and rarely see[1]
- Rise in consumerism, which has[2]:
  - Encouraged parents and patients to shop around for an HCP and actively search for information about vaccines
  - Eroded parents' and patients' trust in HCPs
- Spread of misinformation via mass media, social media, and the internet[3,4]
- Growing willingness to question the integrity of scientists, public health officials, and anyone else involved in formulating immunization policies[5]

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Timmermans S, Oh H. *J Health Soc Behav.* 2010;51(suppl):S94-S106. **3.** Opel DJ, et al. *Arch Pediatr Adolesc Med.* 2009;163(5):432-437. **4.** Kennedy A, et al. *Health Affairs.* 2011;30(6):1151-1159. **5.** Colgrove J. *State of Immunity: The Politics of Vaccination in Twentieth-Century America.* Berkeley, CA: University of California Press; 2006.

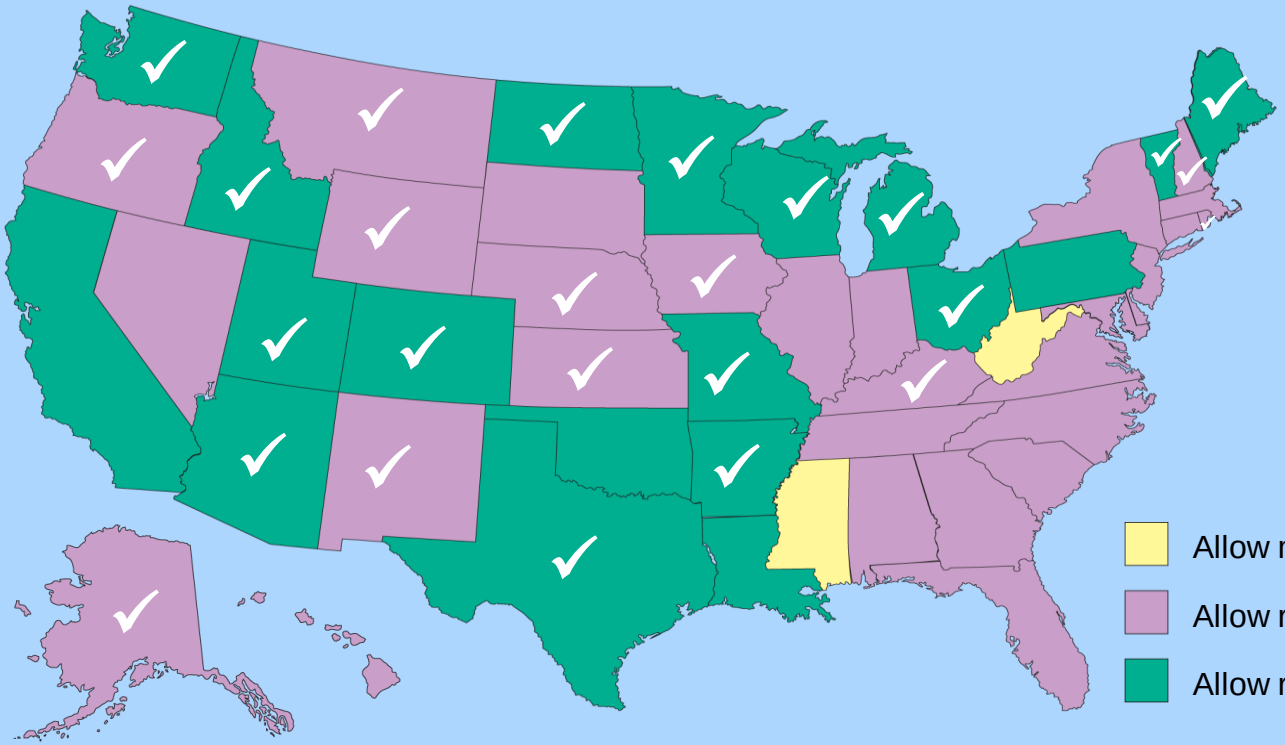
Impact of Non-Medical Exemptions on Vaccination Rates

- Overall mean state-level rates of non-medical exemptions have increased; pace of that increase has accelerated[1-3]
- Vaccination coverage rates are lower in states with personal belief exemptions (PBEs) than in states permitting only religious exemptions[1,3]
- Children with non-medical exemptions tend to aggregate within schools and communities[2,4]
- Vaccine-preventable diseases tend to cluster in areas where exemption rates are highest[5-8]

References: **1.** Omer SB, et al. *N Engl J Med.* 2012;367(12):1170-1171. **2.** Omer SB, et al. *N Engl J Med.* 2009;360(19):1981-1988. **3.** Omer SB, et al. *JAMA.* 2006;296(14):1757-1763. **4.** Buttenheim A, et al. *Am J Public Health.* 2012;102(8):e59-e67. **5.** Centers for Disease Control and Prevention (CDC). *MMWR.* 2008;57(8):203-206. **6.** Omer SB, et al. *Am J Epidemiol.* 2008;168(12):1389-1396. **7.** Imdad A, et al. *Pediatrics.* 2013;132(1):37-43. **8.** Atwell JE, et al. *Pediatrics.* 2013;132(4):624-630.

High Incidence of Pertussis in States That Allow PBEs: US, 2013

White check marks indicate states where the documented incidence of pertussis exceeded the national average during 2013.[1]



In 15 of 19 (79%) states permitting PBEs and 11 of 31 (35%) states not allowing PBEs, the documented incidence of pertussis was higher than average.[2]

- Allow medical exemptions only
- Allow religious exemptions but not PBEs
- Allow religious exemptions and PBEs

[a] In Missouri, PBEs are permitted only for children in day care, preschool, and nursery school.[2,3] Map adapted from Harrington JW.[3]

References: **1.** CDC. 2013 Provisional Pertussis Surveillance Report, March 2014. http://www.cdc.gov/pertussis/downloads/pertussis-surveillance-report.pdf. Accessed April 28, 2014. **2.** National Conference of State Legislatures. States with religious and philosophical exemptions from school immunization requirements. http://bit.ly/14m1gjt. Accessed April 28, 2014. **3.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21.

High Incidence of Measles in States That Allow PBEs: US, 2011

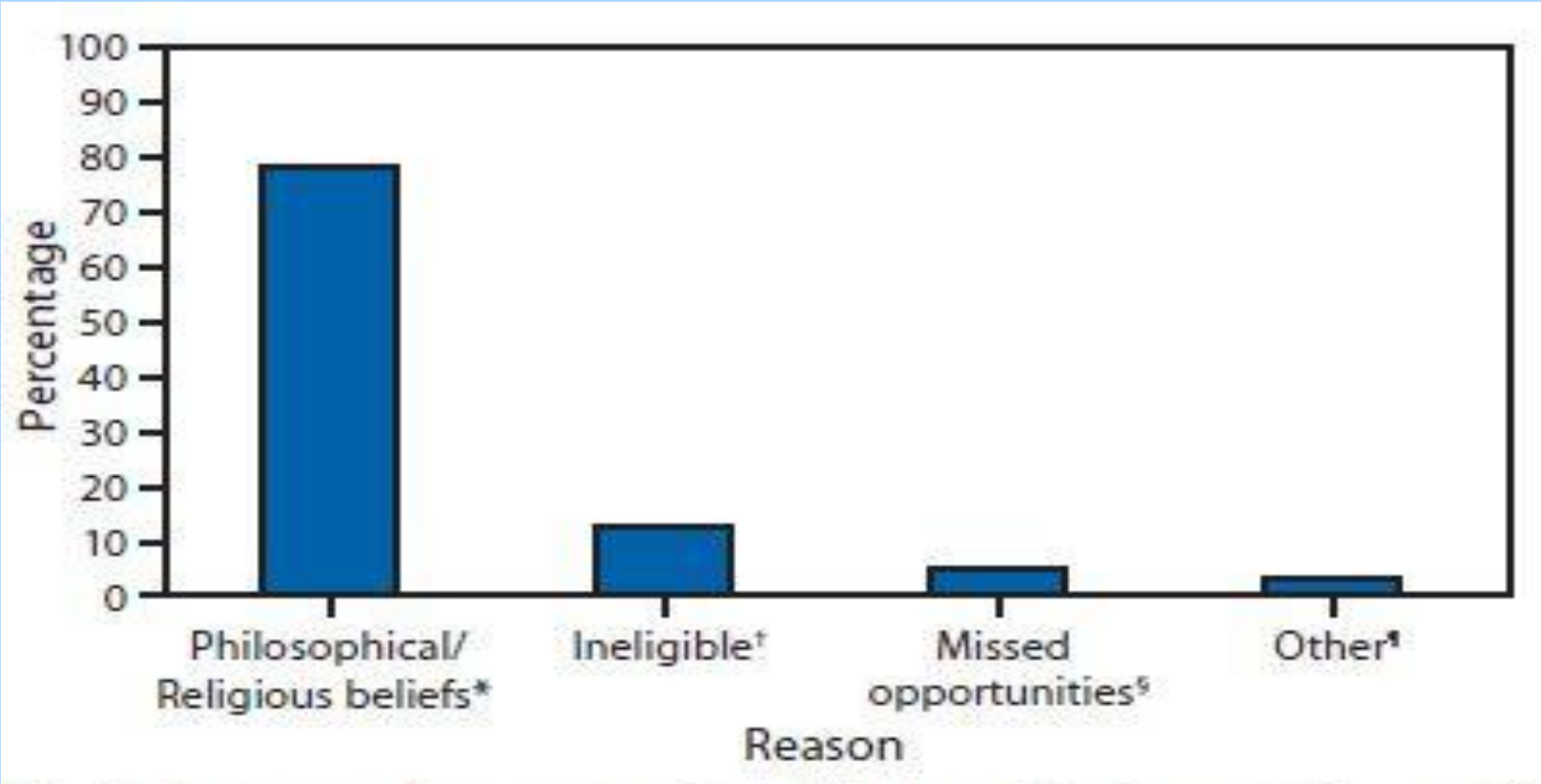
Red check marks indicate states that allow PBEs and had a high incidence of measles during 2011.[1,2]

[a] Import-associated describes cases brought into the US from other countries; cases linked epidemiologically to importations of measles into the US; cases with virologic evidence suggesting recent importation; and cases linked to patients with virologic evidence of recent importation. Map reproduced from CDC.[1]

References: 1. CDC. *MMWR.* 2012;61(15):253-257. **2.** National Conference of State Legislatures. States with religious and philosophical exemptions from school immunization requirements. http://bit.ly/14m1gjt. Accessed April 28, 2014.

High Prevalence of PBEs Among US Residents With Measles: January 1–July 13, 2013

Of the 117 US residents with measles who were unvaccinated against the disease, 79% had philosophical or religious objections.



Vaccine-Hesitant Parents Are Not All the Same[1]

- In a study by Gust and colleagues, 28% of parents had doubts about vaccination
- Concern about vaccine safety was a predictor of vaccine delay or refusal
- Parents with doubts about immunizations differ in their reasons for those doubts

Reference: 1. Gust DA, et al. *Pediatrics.* 2008;122(4):718-725.

Types of Vaccine-Hesitant Parents

- Uninformed but educable
  - Want education to counter anti-vaccine information
- Misinformed but correctable
  - Need information about vaccine benefits
- Well-read and open-minded
  - Want to intelligently discuss pros and cons
- Strongly vaccine-hesitant
  - Willing to listen but not likely to change their mind right away
- Strong-willed and committed against vaccines
  - Want to sway the HCP to *their* line of thinking

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Halperin SA. *Canadian J CME.* 2000;12(1): 62-74.

The ASK Approach for Effective Immunization Communication

- **A**cknowledge the parent's or patient's concerns
  - Ask for clarification to understand those concerns; sometimes a simple fact is all that's needed to dispel a myth or misunderstanding
- **S**teer the conversation
  - Refute the myth or misunderstanding with facts
  - If the parent or patient is *not* already committed against vaccines, continue your conversation to identify additional obstacles
- **K**now your facts; be confident and prepared
  - Recommend or provide reading material
  - Refer the parent or patient to reliable internet resources
  - Make your professional recommendation crystal clear

Reference: 1. Morgana T, Pringle J. Approaches to families questioning vaccines—the ASK approach for effective immunization communication. Presented at: 48th Annual Meeting of the Infectious Diseases Society of America, Vancouver, BC, October 23, 2010. Abstract 92.

The CASE Framework for Conversations about Vaccines

- **C**orroborate
  - Acknowledge the parent's or patient's concern
  - Find some point on which you and the parent or patient can agree
  - Set the tone for a respectful conversation
- **A**bout me
  - Talk about what you've done to enhance your knowledge and expertise (eg, attended a conference)
- **S**cience
  - Describe what science has to say about the topic in question
- **E**xplain and advise
  - Offer your recommendation, based on the science

Reference: 1. Singer A. Making the CASE for vaccine communication: a new model for talking to parents about vaccines. November 2011. http://bit.ly/14lKlh4. Accessed April 28, 2014.

How to Broach the Topic of Vaccines With Parents and Patients

- Use a presumptive format (eg, “Well, we have to do some shots today”)
  - This approach presupposes that the patient will be immunized, thereby increasing the likelihood of vaccine acceptance
- Refrain from using a participatory format (eg, “What do you want to do about shots?”)
  - This approach implies that choosing not to vaccinate is medically acceptable

Reference: 1. Opel DJ, et al. *Pediatrics.* 2013;132(6):1-10.

Tips for Handling Vaccine Hesitancy

- Take a (or another) deep breath
  - Listen to the parents and patients
  - Identify *their* questions or problems
  - Make no assumptions
- Have a plan
  - What is your practice philosophy?
  - Will you see families who outright refuse all vaccines for their children?
- Tailor your advice to each individual parent and patient, based on his or her concerns

Tips for Handling Vaccine Hesitancy

- Document your discussion with the parent and patient
- Revisit the discussion at each subsequent visit
  - Inform the parent and patient that you will be doing so
- For parents and patients who refuse, provide the Vaccine Information Statement and consider using a Refusal to Vaccinate form
- For unimmunized or partially immunized patients, flag the chart for the benefit of yourself and other HCPs, in the event that those patients require sick visits
- Be direct, clear, and authoritative with respect to your office's philosophy and policy vis-à-vis a parent's or patient's ongoing refusal to vaccinate
  - Know the plan, and maintain a consistent approach within your practice

Tips for Handling Vaccine Hesitancy

- “Help me understand how you came to that decision”
- “Help me understand your reasons for feeling that way”
- “What is it about vaccines that worries you?”
- “Share with me what you’ve read”
- “Share with me what you’ve heard about getting 2 or more shots at once”

Concerns That Have Been Raised Regarding Vaccines

- "Overloading of the immune system"[1,2]
- "Autism or other neurologic side effects"[1]
- "Mercury exposure and brain damage"[1,3]
- "Aluminum toxicity and brain damage"[1,3]
- "Formaldehyde injection"[3]

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **3.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Concerns That Have Been Raised Regarding Vaccines

- **"Overloading of the immune system"[1,2]**
- "Autism or other neurologic side effects"[1]
- "Mercury exposure and brain damage"[1,3]
- "Aluminum toxicity and brain damage"[1,3]
- "Formaldehyde injection"[3]

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **3.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Key Facts About Multiple Vaccines and the Immune System

- An infant's immune system has the capacity to respond to thousands of antigens at any given time[1]
  - Immune system is constantly replenished; it cannot be overloaded by the antigens (ie, proteins and polysaccharides) in vaccines[1]
  - In fact, children are exposed to thousands of antigens every day (on toys, doorknobs, and playground equipment)[2]
- Although the number of recommended vaccines has increased over the years, children today typically receive fewer antigens than their parents did in the past[1,2]
- The response to multiple vaccines given during a single visit is similar to the response that occurs when individual vaccines are administered separately[1]

References: **1.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **2.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21.

More Childhood Vaccines—But Fewer Antigens

Thanks to advances in technology, vaccines today contain fewer antigens. Even with more vaccines, the total immunologic load is much less.[1,2]

Number of Immunogenic Proteins and Polysaccharides Contained in Vaccines Over the Past 100 Years

1900		1960		1980		2000	
Vaccine	**Proteins**	**Vaccine**	**Proteins**	**Vaccine**	**Proteins**	**Vaccine**	**Proteins/ Polysaccharides**
Smallpox	~200	Smallpox	~200	Diphtheria	1	Diphtheria	1
TOTAL	**~200**	Diphtheria	1	Tetanus	1	Tetanus	1
		Tetanus	1	WC pertussis	~3000	Acellular pertussis	2-5
		WC pertussis	~3000	Polio	15	Polio	15
		Polio	15	Measles	10	Measles	10
		TOTAL	**~3217**	Mumps	9	Mumps	9
				Rubella	5	Rubella	5
				TOTAL	**~3041**	Hib	2
						Varicella	69
						Pneumococcus	8
						Hepatitis B	1
						TOTAL	**123-126**

WC = Whole-cell.

References: 1. Offit PA, et al. *Pediatrics*. 2002;109(1):124-129. **2.** CDC. *Vaccines and How They Work*. 4th ed. CDC, National Immunization Program, Immunization Services Division; 2004.

Concerns That Have Been Raised Regarding Vaccines

- "Overloading of the immune system"[1,2]
- **"Autism or other neurologic side effects"[1]**
- "Mercury exposure and brain damage"[1,3]
- "Aluminum toxicity and brain damage"[1,3]
- "Formaldehyde injection"[3]

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **3.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Debunking of the "Link" Between Vaccines and Neurologic Side Effects

- In 2010, *The Lancet* retracted the 1998 report alleging a link between vaccines and autism[1]
  - Numerous studies have demonstrated that no such link exists
- Vaccines are given at around the same time that autism becomes apparent; however, they do not cause autism[2]
  - To explain the difference between causal and temporal relations, use an analogy
  - Signs of autism in a child may predate a vaccination but not be noticed until after a particular vaccine has been given[2]
- The increased number of vaccines recommended for children has *not* resulted in a higher prevalence of neurodevelopmental problems[2-5]

References: **1.** Healy CM, Pickering LK. *Pediatrics.* 2011;127(suppl 1):S127-S133. **2.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **3.** Institute of Medicine. The childhood immunization schedule and safety: stakeholder concerns, scientific evidence, and future studies. Washington, DC: National Academies Press; 2013. **4.** DeStefano F, et al. *J Pediatr.* 2013;163(2):561-567. **5.** Iqbal S, et al. *Pharmacoepidemiol Drug Saf.* 2013;22(12):1263-1270.

Concerns That Have Been Raised Regarding Vaccines

- "Overloading of the immune system"[1,2]
- "Autism or other neurologic side effects"[1]
- **"Mercury exposure and brain damage"[1,3]**
- **"Aluminum toxicity and brain damage"[1,3]**
- "Formaldehyde injection"[3]

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **3.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Safety of Thimerosal and Aluminum Salts in Vaccines

- Thimerosal: a mercury-containing preservative that helps prevent bacterial or fungal contamination in vaccines[1]
  - No scientific evidence that links thimerosal with autism[2]
  - Symptoms of mercury poisoning differ from those of autism[3]
  - Measles, mumps, and rubella vaccine never contained thimerosal or any other form of mercury[2]
  - As a precautionary measure, thimerosal was removed from nearly all vaccines (the exception being multidose vials) in 2001[2]
    - Yet the incidence of neurodevelopmental problems has continued to rise
- Aluminum salts: an adjuvant to enhance the immune response[2]
  - Safety is well established[1,2]
  - All infants are exposed to aluminum in the environment (eg, breast milk, infant formulas)[1]

References: **1.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401. **2.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **3.** Healy CM, Pickering LK. *Pediatrics.* 2011;127(suppl 1):S127-S133.

Concerns That Have Been Raised Regarding Vaccines

- "Overloading of the immune system"[1,2]
- "Autism or other neurologic side effects"[1]
- "Mercury exposure and brain damage"[1,3]
- "Aluminum toxicity and brain damage"[1,3]
- **"Formaldehyde injection"[3]**

References: **1.** Harrington JW. *Consultant Ped.* 2011;10(11):S17-S21. **2.** Offit PA, et al. *Pediatrics.* 2002;109(1):124-129. **3.** Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Key Facts About Formaldehyde[1]

- Is used to inactivate:
  - Viruses that cause influenza and polio
  - Tetanus and diphtheria toxins
- Is diluted during the manufacturing process
- Is required for the synthesis of thymidine, purines, and amino acids in all humans
  - Quantity of formaldehyde found naturally in an infant's blood is 10-fold greater than that contained in any individual vaccine

Reference: 1. Offit PA, Jew RK. *Pediatrics.* 2003;112(6):1394-1401.

Providing Parents With Accurate Information

- Most parents seek out information about vaccine safety from other people and from media outlets before taking their child to be immunized[1]
  - Parents are increasingly using the internet to obtain vaccine information
- HCPs remain 1 of the most important sources of information and advice for parents making immunization decisions and can help build parental confidence in vaccines[1-3]
- Assisting HCPs in their efforts to communicate with parents about vaccines should remain a priority for national, state, and local immunization programs[2]

References: 1. Kennedy A, et al. *Health Affairs.* 2011;30(6):1151-1159. **2.** Gust DA, et al. *Pediatrics.* 2008;122(4):718-725. **3.** Freed GL, et al. *Pediatrics.* 2011;127(suppl 1):S107-S112.

Helpful CDC and AAP Resources for HCPs

- CDC resources for vaccine conversations with parents: http://1.usa.gov/18TMMbH
- AAP webpage titled *Communicating with Families*: http://bit.ly/14lNSM5
- AAP webpage titled *Parental Refusal to Vaccinate*: http://bit.ly/11K7cNR
  - Refusal to Vaccinate form
  - AAP clinical report, titled "Responding to Parental Refusals of Immunization of Children"[1]
  - Coding resources for vaccine refusal
  - Sample office vaccine policy statement (for distribution to parents)
  - Sample office poster
  - Resources to answer questions

Reference: 1. Diekema DS, Committee on Bioethics. *Pediatrics.* 2005;115(5):1428-1431.

Helpful Resources for Parents

- Vaccine Education Center at The Children's Hospital of Philadelphia: http://bit.ly/1iFt4r4
- AAP's Childhood Immunization Support Program: http://bit.ly/15FmyHW
- Vaccinate Your Baby: http://www.vaccinateyourbaby.org
- Offit PA, Bell LM. *Vaccines: What Every Parent Should Know*. New York, NY: IDG Books; 1999
- Humiston SG, Good C. *Vaccinating Your Child: Questions and Answers for the Concerned Parent*. Atlanta, GA: Peachtree Publishers; 2000
- Fisher MC. *Immunizations & Infectious Diseases: An Informed Parent's Guide*. Elk Grove Village, IL: AAP; 2005
- Myers MG, Pineda D. *Do Vaccines Cause That? A Guide for Evaluating Vaccine Safety Concerns.* Galveston, TX: Immunizations for Public Health; 2008

Additional Resources for HCPs and/or Parents

- Immunization Action Coalition:
  http://www.vaccineinformation.org
- Immunization Education Program of the AAP's Pennsylvania chapter:
  http://www.paiep.org
- Institute for Vaccine Safety, Johns Hopkins Bloomberg School of Public Health:
  http://www.vaccinesafety.edu
- National Association of Pediatric Nurse Practitioners:
  http://bit.ly/13f06Du
- National Network for Immunization Information:
  http://www.immunizationinfo.org
- Pediatric Infectious Diseases Society position statement on PBEs:
  http://bit.ly/187OMjv

Discussion